

CLAIMS

1. An oil pump comprising:

a base including an actuating chamber, a suction port, a delivery port, a suction passage for supplying oil to said suction port, a delivery passage into which said oil is delivered from said delivery port, and a bypass passage for communicating with said delivery passage and said suction passage;

a rotor disposed rotatably in said actuating chamber for actuating a pump action to suck said oil in said suction passage from said suction port and to supply said oil to said delivery passage by way of said delivery port; and

a flow control valve disposed in said base for returning an excessive oil from said delivery passage to said suction passage as a returning flow of oil by way of said bypass passage when a flow amount of oil is excessive in said delivery passage;

wherein a corrosion-proof member having corrosion resistance disposed in an inner wall surface of at least one of said suction passage and said bypass passage so as to face to said returning flow of oil, and

wherein said corrosion-proof member has a discontinuous shape in a circumferential direction of a center line in a cross section which intersects said center line of one of said suction passage and said bypass passage at right angles.

2. The oil pump according to claim 1, wherein said corrosion-proof member has one of a V-shape, a U-shape, and a C-shape in said cross section which intersects said center line of one of said suction passage and said bypass passage at right angles.

3. The oil pump according to claim 1, wherein said corrosion-proof member has a spring force for being urged in an opening direction thereof in said cross section which intersects said center line of one of said suction passage and said bypass passage at right angles, and wherein said corrosion-proof member is fixed by said spring force in at least said one of said suction passage and said bypass passage.

4. The oil pump according to claim 1, wherein said base is formed of aluminum alloy, and said corrosion-proof member is formed of material which is higher than aluminum alloy in average hardness and corrosion resistance.

5. The oil pump according to claim 1, wherein at least a portion being in contact with oil in said corrosion-proof member is mainly formed of ferrous material selected from a group of alloy steel and carbon steel, or ceramic material.

6. The oil pump according to claim 1, wherein said suction passage has a long sideways shape with a long diameter and a short diameter in said cross section, and said corrosion-proof member is disposed in the side of said long diameter of said suction passage.

7. The oil pump according to claim 1, wherein said corrosion-proof member is set to be flat with an inner wall surface at which said corrosion-proof member is disposed in said suction passage and said bypass passage.

8. The oil pump according to claim 1, wherein said flow control valve has a spool for moving in said delivery passage depending on a pressure of said delivery passage, and said base has a balancing concavity into which a part of said returning flow of oil flows from said delivery passage for increasing balance of said spool,

wherein said bypass passage communicates with a portion which faces to said bypass passage in said delivery passage, and

wherein a second corrosion-proof member having corrosion resistance is disposed at a position for facing to a part of said returning flow of oil.

9. The oil pump according to claim 8, wherein said second corrosion-proof member has a cup-shape or a plate-shape.

10. The oil pump according to claim 8, wherein said second corrosion-proof member has an air vent way.

11. The oil pump according to claim 8, wherein said base is formed of aluminum alloy and said second corrosion-proof member is formed of material being higher than aluminum alloy in average hardness and corrosion resistance.

12. The oil pump according to claim 8, wherein at least a part being in contact with oil in said second corrosion-proof member is mainly formed of ferrous material selected from a group of alloy steel and carbon steel, or ceramic material.